THIS OPINION WAS NOT WRITTEN FOR PUBLICATION

The opinion in support of the decision being entered today (1) was not written for publication in a law journal and (2) is not binding precedent of the Board.

Paper No. 16

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte JONATHAN MASS

Appeal No. 95-2552
Application 07/886,228[1]

ON BRIEF

Before SCHAFER, Vice Chief Administrative Patent Judge, and McQUADE and BARRETT, Administrative Patent Judges.

BARRETT, Administrative Patent Judge.

DECISION ON APPEAL

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[1] Application for patent filed May 21, 1992, entitled "Artificial Satellite Communication System."

This is a decision on appeal under 35 U.S.C. § 134 from the final rejection of claims 1-7, 15-18, 20-25, and 27-31, all of the claims pending in the application. Claims 8-14, 19, and 26 have been cancelled.

The invention is directed to a communication system including a constellation of a plurality of artificial satellites in a particular orbit and a method of deploying such a constellation of satellites. The constellation of satellites is said to exploit the natural spacing of approximately 120E in longitude of the important land masses of Europe, North America, and the Far East. The system is said to provide higher elevation angles of the line-of-sight to the satellite which reduces shadowing from mountains and buildings and propogation impairments due to foliage particularly when used with mobile stations (e.g., land vehicles) and which makes it possible to use simpler upward-pointing antennas on the mobile ground station.

Independent claims 1, 15, and 27 are reproduced below.

> 1. A communication system including a constellation of a plurality of artificial satellites orbiting the Earth, each artificial satellite having communication means providing communication with the Earth, characterized in that the plurality of artificial satellites are in triply-geosynchronous (TGS) orbits having a period of eight sidereal hours, or twice-triply-geosynchronous (TTGS) orbits having a period of sixteen sidereal hours, which orbits are inclined with respect to the Equator and synchronized with the Earth's rotation such as to exploit the natural spacing of approximately 120E in longitude of the major land masses of Europe, North America and the Far East for communication with the artificial satellites to provide for higher elevation angles in such land masses than in other areas.
>
> 15. A communication system including a constellation of a plurality of artificial satellites orbiting the Earth, each satellite having communication means providing communication with the Earth; characterized in that the satellites are in inclined elliptical orbits having their perigee and apogee offset from the extreme latitudes so as to obtain longer stays of the satellites over predetermined areas in one hemisphere than would be possible with such elliptical orbits in which the perigee and apogee are not offset from the extreme latitudes.

> 27. A method of deploying a constellation of artificial satellites communicating with and orbiting the Earth, comprising placing a plurality of the artificial satellites in triply-geosynchronous (TGS) orbits having a period of eight sidereal hours, or twice-triply-geosynchronous (TTGS) orbits having a period of sixteen sidereal hours, which orbits are inclined with respect to the Equator and synchronized with the Earth's rotation, such as to exploit the natural spacing of approximately 120E in longitude of the major land masses of Europe, North America and the Far East for communication with the artificial satellites to provide for higher elevation angles in such land masses than in other areas.

No prior art is relied upon in the rejections.

Claims 1-7, 15-18, 20-25, and 27-31 stand rejected under 35 U.S.C. § 101 as being directed to nonstatutory subject matter. The examiner's position is that the claimed arrangement does not appear to be a new "process, machine, manufacture, or composition of matter" under § 101.

Claims 15-18 stand rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particular point out and distinctly claim the subject matter which applicant regards as his invention. The examiner states that the language "obtain longer stays" in claim 15 is indefinite (Examiner's Answer, page 4): "The language 'longer stays' is deemed indefinite, since it is unclear what the length of 'stay' would be for a satellite in an elliptical orbit in which the perigee and apogee are not offset from the extremes."

OPINION

We reverse.

35 U.S.C. § 101

Appellant argues that the communication systems of claims 1 and 15 fall within the class of a "manufacture" under § 101. We agree. A manufacture is defined to include: "Every article devised by

man except machinery upon the one side, and compositions of matter and designs on the other." 1 Chisum, Patents § 1.02[3] (1994), quoting W. Robinson, The Law of Patents for Useful Inventions 270 (1890). The communication systems are comprised of physical man-made articles, "a plurality of artificial satellites . . . each artificial satellite having communication means providing communication with the Earth," which are arranged in a man-made constellation. The communications system has utility in the technological field of telecommunications and thus is subject matter consistent with the Constitutional purpose to promote the progress of "useful arts," Article 1, Section 8. Accordingly, the systems of claims 1 and 15 are considered statutory subject matter under § 101 within the class of a "manufacture."

The communication system of claims 1 and 15 does not fall within one of the exclusions of "laws of nature, natural phenomena, and abstract ideas." The system is manifestly not a "law of nature" or a "natural phenomenon." As stated in Jacobs, The Patentability of Printed Matter: Critique and Proposal, 18 Geo. Wash. L. Rev. 475, 478 (June 1950):

> The term "abstract ideas" has been used to describe those ideas which are not embodied in corporeal form. It covers such unpatentable subjects or arts as laws of science, systems of notation, business methods and methods involving the emotional and intellectual facilities.

Here we are dealing with physical subject matter, artificial satellites each with communication means, in a specific physical arrangement. Therefore, the subject matter of claims 1 and 15 is not merely an abstract idea. We see that there are ways to claim the subject matter that would be nonstatutory, e.g., a claim to the constellation or pattern per se without the satellites; however, these are not the claims on appeal.

Method claim 27 falls within the § 101 class of a "process." "[A] series of steps is a 'process' within § 101 unless it falls within a judicially determined category of nonstatutory subject matter exceptions." In re Sarkar, 588 F.2d 1330, 1333, 200 USPQ 132, 137 (CCPA 1978). Claim 27 is directed to deploying a constellation of artificial satellites to produce a particular physical configuration and characteristics and involves the application of physical force to physical objects to produce a man-made manufacture. The method of claim 27 is not an abstract idea like a mathematical algorithm. Accordingly, method claim 27 is considered statutory subject matter under § 101 within the class of a "process."

Appellant points to patents to Grisham, U.S. Patent 3,243,706, issued March 29, 1966, Draim, U.S. Patent 4,809,935, issued March 7, 1989, and Draim, U.S. Patent 4,854,527, issued August 8, 1989, as evidence that the policy of the U.S. Patent and Trademark Office has been to consider such systems and methods as statutory subject matter under 35 U.S.C. § 101 (Brief, pages 12-13). "The allowance of claims in other applications and other patents is not controlling on our consideration of this case." Ex parte Bondiou, 132 USPQ 356, 358 (Bd. App. 1961); In re Riddle, 438 F.2d 618, 620, 169 USPQ 45, 47 (CCPA 1971) ("'two wrongs cannot make a right'"). Nevertheless, our decision is consistent with these patents.

The examiner states (Examiner's Answer, page 3):

> It is known that any vessel in space would be governed by a grant under 35 USC 194 [sic, 105?]. However, in the instant claimed [sic, claims] the spacecraft itself or its control is not the subject of the claimed invention, but what is claimed, is merely the "system" of satellites in particular orbits about the Earth.

The reference to 35 U.S.C. § 194 is presumably meant to refer to § 105 since there is no § 194. Section 105, entitled "Inventions in outer space," is contained within Chapter 10 of Title 35, "Patentability Of Inventions," and is directed to conditions under which an invention made, used, or sold in outer space shall be considered to be made or sold within the United States. Section 105 does not address whether inventions used in space are statutory subject matter and therefore is not relevant to the statutory subject matter issue.

The examiner further states (Examiner's Answer, page 3):

> The instant claimed invention further does not claim the structure of the satellite to which the country of registry would have legal territorial rights, what is claimed is a "satellite system" that it [sic, is] neither a process nor an article of manufacture.

It is true that the claims do not recite detailed structure of the satellite, but we fail to see how this affects the statutory subject matter analysis of the claimed "satellite system." The invention is the arrangement of satellites to produce an improvement in elevation angle of the line-of-sight and not the structure of the satellites themselves. The satellites are claimed broadly as "having communication means providing communication with the Earth" (claims 1 and 15) or as "communicating with and orbiting the Earth" (claim 27); however, this is sufficient to indicate that the satellites which form the system are real physical objects, not just an abstraction.

The examiner lastly states (Examiner's Answer, page 3):

> The mere mention in the claim that it is a communication system does not make the "system" patentable under 35 USC 194 [sic, 105?], since it appears that the "novelty" lies in the arrangement of the satellites not the fact that the satellites are able to communicate with the United States.

As previously noted, § 105 has nothing to do with determining statutory subject matter. It is true that the mere use of the word "system" does not make a claim to a system statutory. See In re Walter, 618 F.2d 758, 205 USPQ 397 (CCPA 1980) ("system" for seismic prospecting nonstatutory). However, here we are satisfied that the system is statutory subject matter under the § 101 class of a "manufacture." As to the examiner's comment that "it appears that the 'novelty' lies in the arrangement of the satellites," patentable subject matter is based on the claimed subject matter as a whole, not on the point of novelty. Diamond v. Diehr, 450 U.S. 175, 188, 209 USPQ 1, 9 (1981) ("It is inappropriate to dissect the claims into old and new elements and then to ignore the presence of the old elements in the analysis.").

Our conclusion that a "communication system including a constellation of a plurality of artificial satellites orbiting the Earth, each artificial satellite having communication means providing communication with the Earth," as recited in claims 1 and 15, is a "manufacture" is bolstered by the discussion in Interferometrics, Inc. v. Mobile Communications Holdings, Inc., 1994 U.S. App. LEXIS 7504 (4th Cir. 1994) (unpublished). Interferometrics involved a dispute between Interferometrics, Inc. ("IF") and Mobile Communications Holdings, Inc. ("MCHI") involving a partnership formed by the parties in the Ellipsat Corporation ("Ellipsat"). Ellipsat was formed to contruct an elliptical orbit satellite system, known as Ellipso, the final objective being to establish a communication system for cellular phone systems. The partnership agreement provided that IF would select "the most appropriate Interferometrics satellite class that is determined in the orbital system hereof" to be used in the Ellipso system. The parties also prepared an FCC application for the Ellipso system. "For filing purposes, the Ellipso system was divided into two constellations, Ellipso I and

Ellipso II. The Ellipso I . . . proposed a system of six satellites rotating about the earth in an elliptical orbit. The application referred to the use of IF's 'eyesat' satellite." (Slip op. at 4.) The details of the dispute are not relevant. However, the fact that the partnership was formed to construct a satellite system, which was described in the FCC application in terms of a constellation of satellites in a particular orbit, tends to show that a satellite system is a tangible manufacture.

For the reason stated above, the § 101 rejection of claims 1-7, 15-18, 20-25, and 27-31 is reversed.

35 U.S.C. § 112, second paragraph

Appellant responds that the pertinent portion of claim 15 "clearly states that the 'longer stays' obtained by the present invention are longer 'than would be possible with such elliptical orbits in which the perigee and apogee are not offset from the extreme latitudes'" (Brief, page 14). Appellant explains why this happens as follows (Brief, page 15):

> Having the perigees and apogees offset from the extreme latitudes (that is having a perigee angle different from 90E as in existing satellite systems), results in the satellite altitude being higher and its velocity lower relative to the Earth near the preferred latitude. This produces both higher elevation angles and longer times of visibility of the satellites from Earth stations, as compared to the case of satellites and orbits where the perigee angle is nearly 90E, in which case the apogee is not offset from the extreme latitude.

The phrase "obtain longer stays . . . than would be possible with such elliptical orbits in which the perigee and apogee are not offset from the extreme latitudes" clearly defines that the relative length of stay is longer when the perigee and apogee are offset from the extreme latitudes than when they are not.

The claim does not have to recite how much longer, in terms of actual time, to be definite. Accordingly, the § 112, second paragraph rejection of claim 15 is reversed.

REVERSED

RICHARD E. SCHAFER	)	
Vice Chief Administrative Patent Judge	)	
	)	
	)	
	)	
	)	BOARD OF PATENT
JOHN P. McQUADE	)	APPEALS
Administrative Patent Judge	)	AND
	)	INTERFERENCES
	)	
	)	
	)	
LEE E. BARRETT	)	
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